

Notice of Allowability	Application No.	Applicant(s)	
	10/753,091	ARKHIPOV ET AL.	
	Examiner	Art Unit	
	Jerry Martin Blevins	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed March 10, 2006.
2. ☒ The allowed claim(s) is/are 1, 2, 4, 5, 7-17, 19, 20 and 22-52.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

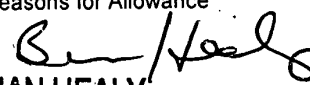
4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 10/21/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


BRIAN HEALY
PRIMARY EXAMINER
ART UNIT ~~2883~~ 2883

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Carson on March 21, 2006.


The application has been amended as follows:

At line 14 of claim 1, after the word "imperfection", insert the following: --whereby the imperfections act to increase the optical coupling efficiency into the optical fiber--.

At line 14 of claim 16, after the word "imperfection", insert the following: --whereby the imperfections act to increase the optical coupling efficiency into the optical fiber--.

At line 13 of claim 28, after the word "imperfection", insert the following: --whereby the imperfections act to increase the optical coupling efficiency into the optical fiber--.

At line 13 of claim 37, after the word "imperfection", insert the following: --whereby the imperfections act to increase the optical coupling efficiency into the optical fiber--.


BRIAN HEALY
PRIMARY EXAMINER
ART UNIT 2883

Response to Arguments

Applicant's arguments, see pages 8 and 9, filed March 10, 2006, with respect to claims 1, 2, 4, 5, 7-17, and 22-52 have been fully considered and are persuasive. The rejection of claims 1, 2, 4, 5, 7, 10-17, 22-41, and 44-52 and the objection to claims 8, 9, 42, and 43 have been withdrawn.

Allowable Subject Matter

Claims 1, 2, 4, 5, 7-17, 19, 20, and 22-52 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the closest prior art reference, US Patent to Duggal et al., number 6,538,375, teaches an optic device comprising a plurality of layers (Figures 3, 4), the optical device comprising an optical fiber (Figures 3,4, fiber light source 21) having a substantially axial symmetry (Figures 3,4), the optical fiber comprising a transparent envelope (elements 26, 28, and 29, with element 28 transparent, column 6, line 29) surrounding a core (22); and a light source (21) comprising an inner electrode layer (28), a reflective outer electrode layer (element 27 and column 13, line 28), and an active area layer (23) located between the inner electrode and the outer electrode, wherein the light source and the optical fiber are integrated (as fiber light source 21), and wherein the light source has an axial symmetry and is positioned coaxially with respect to the axis of the optical fiber (Figures 3,4), and wherein the inner electrode comprises a transparent material (column 6, line 29) to permit light generated in the active area to propagate outside the light source and into the optical fiber. Duggal does

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not teach that the core is doped with phosphorescent or fluorescent material. Duggal also does not teach that the transparent envelope comprises a cladding layer. US Patent to Desurvire et al., number 5,892,876, teaches an optical fiber (Figure 1, element 1) comprising a cladding (5) surrounding a core (elements 2,3,4) doped with a fluorescent material (column 1, line 15, and column 3, line 38). It would have been obvious to one of ordinary skill in the art at the time of the invention to dope the core of Duggal with a fluorescent material, as taught by Desurvire. The motivation would have been to obtain a desired output signal, such as an optical oscillator or an optical amplifier (Desurvire, column 1, lines 7-11). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to surround the core of Duggal with the cladding of Desurvire. The motivation would have been to protect the core and to prevent leakage of light from the core. Duggal also does not teach that at least one of the layers has imperfections whereby the imperfections act to increase the optical coupling efficiency into the optical fiber. US Patent to Lester, number 6,091,085, teaches an optical device comprising a plurality of layers, wherein at least one of the layers has imperfections (column 3, lines 54-64). However, Lester does not teach that the imperfections act to increase the optical coupling efficiency into an optical fiber. Moreover, Duggal, neither alone or in combination with the prior art of record, neither discloses nor renders obvious imperfections that act to increase the optical coupling efficiency into the optical fiber.

Claims 2, 4, 5, 7-15, and 27 are allowed based on their dependence from allowed base claim 1.

Regarding claim 16, Duggal teaches a method of making an optical device, the method comprising forming an optical fiber having a substantially axial symmetry (Figures 3,4, fiber light source 21); surrounding a fiber core (22) of the optical fiber with a transparent envelope (elements 26, 28, and 29, with element 28 transparent, column 6, line 29); integrating a light source (21) with the optical fiber, the light source comprising an inner electrode layer (28), a reflective outer electrode layer (element 27 and column 13, line 28), and an active area layer (23) located between the inner electrode and the outer electrode; and positioning the light source coaxially with respect to the axis of the optical fiber (Figures 3,4), wherein the inner electrode comprises a transparent material (column 6, line 29) to permit light generated in the active area to propagate outside the light source and into the optical fiber. Duggal does not teach that the core is doped with phosphorescent or fluorescent material. Duggal also does not teach that the transparent envelope comprises a cladding layer. Desurvire teaches an optical fiber (Figure 1, element 1) comprising a cladding (5) surrounding a core (elements 2,3,4) doped with a fluorescent material (column 1, line 15, and column 3, line 38). It would have been obvious to one of ordinary skill in the art at the time of the invention to dope the core of Duggal with a fluorescent material, as taught by Desurvire. The motivation would have been to obtain a desired output signal, such as an optical oscillator or an optical amplifier (Desurvire, column 1, lines 7-11). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to surround the core of Duggal with the cladding of Desurvire. The motivation would have been to protect the core and to prevent leakage of light from the core. Duggal also does

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not teach that at least one of the layers has imperfections whereby the imperfections act to increase the optical coupling efficiency into the optical fiber. Lester teaches an optical device comprising a plurality of layers, wherein at least one of the layers has imperfections (column 3, lines 54-64). However, Lester does not teach that the imperfections act to increase the optical coupling efficiency into an optical fiber. Moreover, Duggal, neither alone or in combination with the prior art of record, neither discloses nor renders obvious imperfections that act to increase the optical coupling efficiency into the optical fiber.

Claims 17, 19, 20, 22-26, and 51 are allowed based on their dependence from allowed base claim 16.

Regarding claim 28, Duggal teaches a method of making an optical device, the method comprising forming an optical fiber having a substantially axial symmetry (Figures 3,4, fiber light source 21); surrounding a fiber core (22) of the optical fiber with a transparent envelope (elements 26, 28, and 29, with element 28 transparent, column 6, line 29); integrating a light source (21) with the optical fiber, the light source comprising an inner electrode layer (28), an outer electrode layer (element 27 and column 13, line 28), and an active area layer (23) located between the inner electrode and the outer electrode; and positioning the light source coaxially with respect to the axis of the optical fiber (Figures 3,4), wherein the inner electrode comprises a transparent material (column 6, line 29) to permit light generated in the active area to propagate outside the light source and into the optical fiber. Duggal does not teach that the core is doped with phosphorescent or fluorescent material. Duggal also does not

teach that the transparent envelope comprises a cladding layer. Desurvire teaches an optical fiber (Figure 1, element 1) comprising a cladding (5) surrounding a core (elements 2,3,4) doped with a fluorescent material (column 1, line 15, and column 3, line 38). It would have been obvious to one of ordinary skill in the art at the time of the invention to dope the core of Duggal with a fluorescent material, as taught by Desurvire. The motivation would have been to obtain a desired output signal, such as an optical oscillator or an optical amplifier (Desurvire, column 1, lines 7-11). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to surround the core of Duggal with the cladding of Desurvire. The motivation would have been to protect the core and to prevent leakage of light from the core. Duggal also does not teach that the outer electrode (cathode 27) comprises transparent material and a reflective layer on top of the outer electrode. US Pre Grant Publication to Inditsky, number 2003/0016930, teaches a light source (light guiding rod, LGR) with reflective cladding (page 14, paragraph 179). It would have been obvious to one of ordinary skill in the art to include the reflective outer layer of Inditsky in the device of Duggal. The motivation would have been to prevent absorption of external light. US Patent to Bulovic et al., number 6,297,495 teaches an optic device (column 10, line 17) comprising a pair of transparent electrodes, namely a transparent cathode and a transparent anode (column 10, lines 19-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to make the outer electrode (cathode) of Duggal out of transparent material, as taught by Bulovic. The motivation would have been to allow easy passage of light from the light source into the fiber. Duggal also

does not teach that at least one of the layers has imperfections whereby the imperfections act to increase the optical coupling efficiency into the optical fiber. Lester teaches an optical device comprising a plurality of layers, wherein at least one of the layers has imperfections (column 3, lines 54-64). However, Lester does not teach that the imperfections act to increase the optical coupling efficiency into an optical fiber. Moreover, Duggal, neither alone or in combination with the prior art of record, neither discloses nor renders obvious imperfections that act to increase the optical coupling efficiency into the optical fiber.

Claims 29-36 and 52 are allowed based on their dependence from allowed base claim 28.

Regarding claim 37, Duggal teaches an optic device comprising a plurality of layers (Figures 3, 4), the optical device comprising an optical fiber (Figures 3,4, fiber light source 21) having a substantially axial symmetry (Figures 3,4), the optical fiber comprising a transparent envelope (elements 26, 28, and 29, with element 28 transparent, column 6, line 29) surrounding a core (22); and a light source (21) comprising an inner electrode layer (28), an outer electrode layer (element 27 and column 13, line 28), and an active area layer (23) located between the inner electrode and the outer electrode, wherein the light source and the optical fiber are integrated (as fiber light source 21), and wherein the light source has an axial symmetry and is positioned coaxially with respect to the axis of the optical fiber (Figures 3,4), and wherein the inner electrode comprises a transparent material (column 6, line 29) to permit light generated in the active area to propagate outside the light source and into

the optical fiber. Duggal does not teach that the core is doped with phosphorescent or fluorescent material. Duggal also does not teach that the transparent envelope comprises a cladding layer. Desurvire teaches an optical fiber (Figure 1, element 1) comprising a cladding (5) surrounding a core (elements 2,3,4) doped with a fluorescent material (column 1, line 15, and column 3, line 38). It would have been obvious to one of ordinary skill in the art at the time of the invention to dope the core of Duggal with a fluorescent material, as taught by Desurvire. The motivation would have been to obtain a desired output signal, such as an optical oscillator or an optical amplifier (Desurvire, column 1, lines 7-11). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to surround the core of Duggal with the cladding of Desurvire. The motivation would have been to protect the core and to prevent leakage of light from the core. Duggal also does not teach that the outer electrode (cathode 27) comprises transparent material and a reflective layer on top of the outer electrode. Inditsky teaches a light source (light guiding rod, LGR) with reflective cladding (page 14, paragraph 179). It would have been obvious to one of ordinary skill in the art to include the reflective outer layer of Inditsky in the device of Duggal. The motivation would have been to prevent absorption of external light. Bulovic teaches an optic device (column 10, line 17) comprising a pair of transparent electrodes, namely a transparent cathode and a transparent anode (column 10, lines 19-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to make the outer electrode (cathode) of Duggal out of transparent material, as taught by Bulovic. The motivation would have been to allow easy passage of light from the light source into the fiber.

Duggal also does not teach that at least one of the layers has imperfections whereby the imperfections act to increase the optical coupling efficiency into the optical fiber.

Lester teaches an optical device comprising a plurality of layers, wherein at least one of the layers has imperfections (column 3, lines 54-64). However, Lester does not teach that the imperfections act to increase the optical coupling efficiency into an optical fiber.

Moreover, Duggal, neither alone or in combination with the prior art of record, neither discloses nor renders obvious imperfections that act to increase the optical coupling efficiency into the optical fiber.

Claims 37-50 are allowed based on their dependence from allowed base claim 36.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Martin Blevins whose telephone number is 571-272-8581. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMB


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